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MAY, 1872.

Certainly it is excellent discipline for an author to feel that he must say all he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than anything else.—RUSKIN.

Original Communications.

PRESENT STATE OF ELECTRO-THERAPEUTICS.*

BY A. D. ROCKWELL, M. D.

Electricity in its relations to practical medicine has for many years been little more than a dead letter in the therapeutical alphabet. Recently, however, a very decided and remarkable interest seems to have been revived, both here and in Europe, in this department of our profession; and it is to be hoped that this fascinating field of research will not again be given over to the tender mercies of charlatanical greed.

In the brief time allotted to me it would be vain to attempt a comprehensive and at the same time a minute exposition of even a single division of my subject. I propose therefore to offer a few words, first, on the physics and physiology of electricity; second, to give a general summary of the different methods of its application; third, to estimate, if possible, the measure of benefit to be derived in the treatment of disease by its judicious and scientific use.

* Read by invitation before the last session of the New York State Medical Society.

The terminology of electro-therapeutics has been and is in such a vague and uncertain condition that intelligent conversation with one who is not specially versed in the subject is well-nigh impossible. Let me then at the outset, at the risk of being thought to dwell unnecessarily on the simple facts of electro-physics with which we are all supposed to be familiar, say that electricity is manifested in three forms; viz., magnetism, static electricity, and current electricity.

Magnetism. The magnet need not detain us. As a therapeutic agent it is of little or no importance, and the beneficial results supposed to have been obtained by its use in certain neuralgias depend doubtless on mental excitation.

Static electricity. Static electricity, as is well known, is generated by friction, and denotes the electrical condition of bodies in which electricity remains insulated or stationary. By passing a number of electrical discharges through the air Priestly succeeded in forming an acid out of oxygen and nitrogen; thus demonstrating the presence of a chemical effect. It was, however, proved conclusively by Faraday, whose researches in this department were most elaborate, that as the quantity of electricity generated by any frictional machine is exceedingly, almost infinitesimally, small, so static electricity possesses very feeble chemical or electrolytic effects. When applied to the head it has power to produce a distinct physiological action on the brain only when its tension is so great as to endanger health and even life. Of the nerves of special sense the optic and gustatory alone are sensibly affected by it. The peculiar smell that is perceived when an electrical machine is in operation near by, and which was supposed to have been due to an excited state of the olfactory nerve, we now understand to be due to the development of ozone. Static electricity then deserves no further consideration in this paper. Its want of decided chemical effect renders it of little use in electro-surgery, while most of the indications for its use in medicine are met more effectually by the faradic current.

Current (dynamic) electricity. Under the term current electricity must be included both galvanic and faradic electricity. Galvanic electricity is generated by the action of gases or fluids or metals, or by the contact of two dissimilar conductors. The quantity of galvanism developed by the action of fluids upon metals depends, first, upon the extent of surface acted on by the fluids; and second, on the strength of the fluids. Thus plates of zinc and copper, each two inches square, immersed in a solution of sulphate of copper, generate but half the quantity of electricity produced by the action of the same solution on plates presenting twice the extent of surface. What we term intensity or tension depends on the number of cells that are brought into the circuit. The electric tension of every compound battery is increased with every cell that is added; but it must be remembered that the quantity of electricity from a battery containing any number of cells is no greater than the amount generated by the first cell of the series. To obtain therefore a sufficient quantity of galvanism to raise a platinum wire to a white heat, for the purposes of cauterization and amputation, we require but a few large elements, say four or five. This gives a sufficient volume of current to overcome the great resistance offered by the platinum without developing any marked electrolytic effects. The galvanic current affects powerfully by reflex as well as by direct action. Applied to any portion of the head or face so as to affect the retina, directly or indirectly, through any of the nerve branches, a flash of light is at once perceived, and with a little care the vital function of each nerve of special sense can be excited with no unpleasant results. It has power to stimulate directly the brain, spinal cord, and great sympathetic, and is thus invaluable in the treatment of many forms of central disease.

The faradic current is the current of induction. For its development we need simply a single galvanic cell, to which is attached a helix consisting of wires of varying thickness

and length. For a description of the mechanism of this helix and its rheotome I must refer to works on physics. The faradic current works very slightly by reflex action, and has but little power to influence directly either the brain or spinal cord. It undoubtedly reaches the great sympathetic; but it is impossible to localize its effects in any of the ganglia, or to call their special function into action when the nerve is in a measure paralyzed. It does not in any way excite the nerves of special sense unless they are in a state of abnormal irritability, or without the current is of such tension as to endanger the integrity of their normal function.

The impression very generally seems to prevail that there are many kinds of electricity; and this impression is strengthened from the fact that in most of the works on electro-therapeutics, and in almost every published article on the subject, we find adopted a crude and indefinite nomenclature. On the one hand, we hear and read of the primary, the galvanic; the constant, and the continuous currents; on the other, of the secondary, the faradic, the induced, and the interrupted currents. Now we can avoid all this confusion if we recollect that aside from magnetism and static electricity but two forms are manifest, viz., galvanic and faradic electricity. With the first of these the terms primary, constant, and continuous are synonymous; with the second the terms secondary, induced, and interrupted exactly accord. The expressions direct and indirect have been a stone of stumbling to many who have supposed them to refer to the two currents. They merely designate the direction of either current; direct signifying from the center toward the periphery; indirect, from the periphery toward the center.

Speaking of the two currents, the question is frequently asked by both physician and patient, In what do they differ? Is the galvanic stronger than the faradic? These questions are difficult to answer, in a word. It may be said that the galvanic possesses powerful electrolytic properties, is capable

of penetrating to the brain and spinal cord, calls into action the vital functions of the nerves of special sense, and affects strongly by reflex action; but under certain conditions the faradic current will do all this. A galvanic current of feeble tension produces slight contraction, and may be hardly felt by the patient; while a faradic current of relative strength may cause pain, and throw the muscle into violent contraction. To the patient the faradic current seems much the more powerful of the two, but the superior potency of the other is readily manifest in the dizziness produced, the flashes of light following excitation of the retina and other resulting phenomena. What then is the essential distinction in the effects of these currents on the body? Experiment and experience lead us to believe it to be mainly of degree rather than a difference in kind, although practically it amounts to the latter. When we come to study the differential indications for the use of the two currents, it is evident that a thorough knowledge of the special physical and physiological advantages of the one over the other will be of service. The advantages of the galvanic over the faradic are these: 1. A greater power of overcoming resistance, by which the central organs are powerfully affected; 2. A power of producing muscular contractions in cases where the faradic fails; 3. A far more potent catalytic, electrotonic, chemical, and thermic action. The advantages of the faradic over the galvanic are these: 1. By virtue of its frequent interruptions it more easily produces muscular contractions when passed over the muscles or nerves that supply them; 2. It produces greater mechanical effect; 3. It is less likely to produce unpleasant or harmful effects when incautiously used than the galvanic.

The general differential indications for the use of the two currents may be thus summed up: the galvanic should be used, first, to act with special electrolytic power on the brain, spinal cord, sympathetic, or any part of the central or peripheral nervous system; second, to produce contractions

in paralyzed muscles that fail to respond to the faradic; in electro-surgery, to produce electrolysis or cauterization. The faradic should be used, first, to act mildly on the brain, spinal cord, sympathetic, or any part of the central or peripheral nervous system; second, to excite muscular contractions wherever the muscles are not so much diseased as to be unable to respond to it; third, to produce strong mechanical effects.*

Methods of electrization. There are in medical electricity two principal methods of applying the current, termed respectively localized and general electrization. Under these two heads may be included every variety of application with either the galvanic or faradic currents.

Localized electrization. To Duchenne is due the credit of having at least systematized the method of localizing currents of electricity in special nerves, muscles, and organs of the body. Localized electrization, however, had for years previous to this time been used both in this country and in Europe. Duchenne, keenly alive to the practical importance of the subject, as well as the almost universal neglect under which it had been struggling for place and position, bodied it forth, as it were, into visible shape, and gave it a local habitation and a name. The leading idea of this method of Duchenne was that the electric current can be localized over a fixed point *under* the skin, if well-moistened conductors are strongly pressed *upon* the skin. This conclusion was reached and readily demonstrated by observing that when dry electrodes are applied to the dry skin sparks with a crackling sound are produced, but no sensation and no muscular contraction. If one electrode is moistened, the other remaining dry, contractions with the phenomenon of sensation are excited under the moistened electrode; while if both electrodes are wet muscular contraction and sensation are not only more decided, but more deeply seated. The system of electro-therapeutics

* Beard and Rockwell's Medical and Surgical Electricity, pp. 153, 156.

and electro-diagnosis which was based on these observations has been refined and developed until it has grown into a permanent department of science.

Localized electrization may be thus subdivided: 1. Galvanization or faradization of individual nerves, muscles, and organs of the body; 2. Galvanization of the brain; 3. Galvanization of the sympathetic; 4. Galvanization of the spinal cord; 5. Cutaneous faradization; 6. The electric moxa, with either the galvanic or faradic current.

For the purposes of localized electrization there are needed a variety of electrodes, of different shapes and sizes, adapted to the locality which it is proposed to influence. The method of electrifying individual nerves and muscles must be sought for in chapters on electro-therapeutical anatomy; and the art of readily and effectually electrizing the eye, ear, nose, larynx, œsophagus, heart, lungs, stomach, liver, kidney, spleen, intestines, rectum, bladder, male and female organs of generation, is described in works on medical electricity.

Galvanization of the head. In galvanization of the head one pole may be placed upon the forehead and the other on the occiput, or a pole may be placed on either mastoid process or on either temple. In making these applications it is well to remember, first, that less dizziness is caused when the current flows from the forehead to the occiput, or through the side of the head, than when it is sent from side to side through the mastoid processes; second, that opening and closing the circuit with the positive pole causes less dizziness than with the negative pole. To those who possess apparatus for increasing and decreasing the strength of the current without causing interruptions it is of course immaterial which pole is applied first.

Galvanization of the sympathetic. All ganglia of the sympathetic can be affected more or less by galvanization, but the cervical are most readily and demonstrably influenced by it. One and perhaps the most effectual method of the

many employed in galvanization of the cervical ganglia is to place an electrode over the sixth cervical vertebra, while the other is placed in the auriculo-maxillary fossa. It is, however, impossible to exclusively localize the current in the great sympathetic. In the method described the spinal cord is affected, while by other methods the pneumogastric and phrenic nerves are reached as well.

Galvanization of the spine. The spinal cord may be electrized by placing one pole a little below the occiput and the other at the coccyx, or better still, in many cases, by placing an electrode on either side of the transverse processes; one pole being two inches below the other, and gradually moving them along until the coccyx is reached. A less irritating effect is produced by placing the negative pole somewhere in the gluteal region, while the positive is applied to the spine. By this method we put the cord in the so-called condition of anelectrotonos. In using the galvanic current, and especially when the central nervous system is submitted to its influence, it should never for one moment be forgotten that its power for evil as well as for good is very great; and in every application in morbid conditions of these organs the current should be most carefully graduated, and every resulting symptom of its use accurately noted.

Cutaneous faradization, etc. Cutaneous faradization is accomplished by thoroughly drying the skin, and applying the current through dry metallic electrodes or the dry hand, while the electric moxa is produced by applying rapidly to one part a dry and finely-pointed metallic electrode. The first method is extremely useful in conditions of profound cutaneous anæsthesia; the second is frequently employed successfully as a counter-irritant in obstinate cases of neuralgia.

General electrization. The object of general electrization is to influence more or less thoroughly by the electric current the various tissues and organs of the body. The most thorough form of application demands that the whole surface

of the body from the head to the feet should be brought in contact with such electrode as may be used in the operation. To effect this it is customary to place the feet of the patient upon a metallic plate, to which the negative pole is attached, while the positive pole is applied to the surface generally. In these operations the faradic current is chiefly employed, although the galvanic may sometimes be used with advantage in those occasional and peculiar cases where the whole nervous system seems to be in a measure insusceptible to any ordinary stimulation.

For a number of years it has been customary with us to substitute our hand for the ordinary sponge electrode, especially when operating about the head and neck. No artificial electrode that can be devised equals the human hand in flexibility and power of adaptation to the inequality of surface in the face and neck, and one needs only to accustom himself to the passage of the current through his hands and fingers to become practically aware of the immense advantage given him in treating all such sensitive parts. Excessively sensitive women will bear and be benefited by this method of treatment, when the application of the same strength of current through any artificial electrode would not be for an instant tolerated. It is hardly necessary to add that the powerful chemical and reflex effects of the galvanic current contraindicate its use to any extent through the person of the operator.

This method of general electrization, which was first systematized and introduced to the profession five years since by my associate, Dr. Beard, and myself, has now been thoroughly tested, not only by ourselves in a series of more than twelve thousand applications, but by a number of others who have had the patience to persevere in its use. Electricity, and more especially in the form of faradization, is not a mere stimulant, the effects of which pass away as rapidly as they are made manifest. It is a *tonic* of vast and varied powers,

and as such is indicated in a large number and great variety of disorders.

Accumulating experience has compelled me to modify and even reject many of the ideas originally held in regard to electro-therapeutical indications; but this main idea of electricity as a tonic I still hold, and every month's experience does but confirm and strengthen my belief. In general electrization, as in other forms and methods of treatment, correct conclusions are reached only by continued and patient observation. He who submits the method to this test will find that its stimulating tonic effects may be divided into three classes: 1. Primary or stimulating effects, or those which are experienced during or immediately after treatment; 2. Secondary or reactive effects, those which are experienced one or two days subsequent to the treatment; 3. Permanent or tonic effects, those which remain in the system as a permanent result of treatment. The secondary or reactive effects are not as a rule manifest in the treatment of a robust, healthy person. It is in those cases of nervous exhaustion, and in debility following organic disease, that they are especially noticeable.

From the above very brief and necessarily incomplete description of this method of operation I would by no means have it understood that its effective use requires no careful study nor close preliminary experience. General as well as localized electrization is the property of that physician only who will take the requisite pains to initiate himself into its immediate and remote effects, its indications and rationale, and become practically familiar with its *modus operandi*. It was lack of familiarity with these things that induced medical men for so many years to accord to the study of electro-therapeutics a position no higher than the compounding of a pill or the administration of an enema. This is certainly one of the most remarkable instances of misconception on the part of a great and liberal profession of which we have record.

Paralysis. The utility of some form of electrization in paralysis has long been an accepted fact; and even to within a very short time this disease, or symptom of disease, has been regarded as *par excellence* the condition for which electricity is indicated. Electrization is without doubt *par excellence* the remedy, but if it accomplished nothing more in other disorders it would certainly be undeserving the position we claim for it. In cases of hemiplegia both general and localized faradization and galvanization are frequently of important service. Under one or both of these methods of treatment I have seen the utterance become rapidly more distinct, the strength improved, and the paralyzed limb, which was progressively atrophying, increase in the course of a few months to the size of its fellow. These results, however, are not uniform; and in conditions of extensive central disorganization the utmost care should be exercised in all operations, especially with the galvanic current, about the head and neck. In the case of the late Prof. Geo. T. Elliot the slightest galvanic or faradic influence near the brain or sympathetic caused immediate and alarming dizziness. Post-mortem examination in his case revealed a remarkable condition of fatty degeneration of the cerebral arteries. Facial and other forms of local paralysis, when not dependent on structural change, generally recover with great rapidity. Paraplegia, however, upon whatever cause it may depend, is the most intractable of all forms of paralysis. In these cases, when the cause is of central origin, the faradic current is powerless to produce contraction of muscles, and occasionally no form nor intensity of current is sufficient to disturb their repose. Glosso-laryngeal paralysis is sometimes temporarily benefited by faradization of the pharynx and tongue, thus relieving in some measure the difficulty in deglutition. The disease, however, is almost surely fatal. In lead paralysis the galvanic current is of service, although beneficial results are slowly obtained. Progressive muscular atrophy presents but an unfavorable prognosis under any method of treatment;

but some suggestive results, occurring in our own experience and in that of others, lead us to believe that all cases are not altogether hopeless.

Anæsthesia. Anæsthesia is a symptom dependent on such a variety of causes, both functional and organic, that the results of treatment are necessarily varied. Taking the cases, however, as we find them, without regard to causation, it will be found that in the majority this annoying symptom yields with remarkable readiness to general faradization, or to the electric brush with the same current. Even when structural change is evident in the peripheral nerves or their centers the galvanic current, directed not alone to the benumbed part, but to the seat of trouble as well, not infrequently improves the sensation at once.

Progressive locomotor ataxy. This is a disease for which electrization is invariably indicated. The late Prof. Remak claimed to have cured quite a number of these cases; but in carefully examining accounts of symptoms as detailed by German writers it is evident that many of their diseases termed ataxy do not certainly depend on atrophy of the cord. I have never seen a complete recovery from this disease; but in the thorough treatment of more than a dozen cases by galvanization of the cord, together with general electrization, quite a number have without doubt been arrested in their course; have indeed improved; and in almost every instance some marked and important amelioration of symptoms have been manifest. The severe neuralgic pains seem to be invariably lessened.

As an illustration of what may frequently be accomplished in such conditions I refer to the case of Mr. D. H., aged forty-nine. This patient consulted me some eighteen months since, complaining of persistent numbness of the hands, feet, and ankles; neuralgic pains in the lower extremities; insomnia, with excessive nervousness, together with a very decided lack of coördinating power in the movements of the legs. The

first of these abnormal symptoms were noticeable about a year before he fell under my observation, but it was not until four months previously that they began to increase in severity with alarming rapidity. I referred the gentleman to Dr. John T. Metcalfe, who at once confirmed the diagnosis of spinal sclerosis, and highly approved the treatment proposed, viz., spinal galvanization and general faradization. The patient was remarkably insusceptible to the influence of either current in the beginning; but as the treatment progressed increased acuteness of sensibility became decidedly manifest in the hands and feet, while the neuralgic pains were dissipated, and the power of coördinating the movements of the lower extremities markedly improved. Sleep became natural, and several other deranged functions improved with the above changes.

After four months of treatment it was found that further improvement was impossible, in consequence of which the patient was advised to discontinue his efforts at least for a time. The results accomplished, however, were extremely gratifying; and more especially since to this time, more than a year since the last application, all the improvement obtained has been retained.

Neuralgia. If electrization was serviceable in no form of disease other than in neuralgia, the measure of benefit derived from its use in this terrible malady would entitle it to our most earnest consideration. The kind of current to be used, its tension and direction; the mode of application, whether by general or localized faradization, central or peripheral galvanization, galvanization of the sympathetic or the electric brush or moxa; all these considerations require for their elucidation more time and space than this brief presentation commands. In this disease, as decidedly perhaps as in any other, the treatment at the outset should be tentative. By an injudicious application the severity of the pain may be much increased, and not infrequently neuralgia has been produced by over-excitation of the healthy nerve.

As an illustration of the difficulty of laying down special and exact rules in the treatment of this affection, I may refer to a lady patient who suffered excruciating pain along the course of the supra-orbital nerve. In most neuralgias gentle currents tend to soothe, while those of great intensity serve to aggravate, the distress. In this instance a galvanic current from only two cells, and a faradic current at its minimum, greatly aggravated the pain, while a faradic current of such tension as to be absolutely unbearable on the healthy side immediately relieved the neuralgia when applied over the diseased nerve.

Spinal irritation. Spinal neuralgia would seem to be a more suitable term to express the conditions of spinal tenderness, shooting pains, and excessive exhaustion implied by spinal irritation. But, however much ideas may differ as regards the pathology of the so-called spinal irritation, there can be no doubt (among those who are familiar with the varied therapeutical uses of electricity) concerning the great value of the galvanic current in the condition under consideration. The descending current—the negative pole being firmly placed on the gluteal region, while the positive pole is applied as nearly as may be to the seat of tenderness—generally works a favorable change after a few applications. In most cases but five or six ordinary cells should at first be used. Not infrequently a current of even less tension is followed a few hours after treatment by considerable prostration; but in my experience this effect is in a short time almost invariably superseded by increased vigor and relief of pain.

In chorea, epilepsy, rheumatism, gout, and catarrh, the disorders of menstruation, aphonia, and anæmia, the results of treatment by electrization vary with the numberless changing circumstances which accompany and are a part of each individual condition.

Chorea—Epilepsy. In its most aggravated and persistent form chorea is frequently treated with remarkable success.

Galvanization of the brain, sympathetic, spinal cord, and of the affected muscles have all afforded relief; but in my hands general faradization has succeeded best, has indeed been followed by speedy recovery after all methods of electrization and medication had failed. Few, if any, complete recoveries from epilepsy from this method have been recorded. Galvanization of the brain and sympathetic, and even powerful faradization in the region of the sixth cervical vertebra, have, in a number of cases in my experience, been followed by the same degree of amelioration as occurs from the use of bromide of potassium; but in most instances its effects were soon lost.

Rheumatism—Gout. These diseases are without doubt frequently benefited, in a greater or less degree, by electricity. Both conditions are so capricious in their symptoms that it is often impossible to estimate the degree of benefit derived from any remedy. Muscular rheumatism, however, yields in many instances most readily and delightfully to localized faradization.

Amenorrhœa—Dysmenorrhœa. Amenorrhœa is a symptom that yields perhaps more readily to some one of the many forms of electrization than to any or all other methods of treatment. In cases dependent on or associated with general debility general electrization is of course indicated; but where all external efforts have been fruitless internal electrization is not infrequently followed by an immediate and satisfactory flow. As an illustration of this result I give the following:

Mrs. H., aged thirty-nine, had not menstruated for nearly a year. She was not anæmic, neither was her strength much impaired. The uterus was slightly anteverted, but there was no evidence of ulceration or congestion. The most annoying symptom of which she complained, and which had persisted for several months, was a spasmodic contraction of the organs of deglutition whenever she attempted to eat or drink. This condition had increased in severity so that on occasions she was unable to take food sufficient to satisfy the cravings of

hunger. For several days I made trial of general faradization, together with localized galvanization, but with no result. With the patient's consent an internal application was then attempted. I introduced a cup-shaped metallic electrode to the uterus, so that the os was completely surrounded, and applied the positive pole firmly against the abdomen immediately above the pubes. The current, which was of considerable strength, I reversed rapidly a number of times during the seance, and on the following day repeated the application. In less than six hours after the second attempt slight signs of returning menstruation were manifest, and steadily increased until, as regards quantity, the flow was quite natural. The patient was immediately relieved of all her distressing spasmodic symptoms, and at the present time (three weeks having elapsed since treatment) still remains free from them.

Dysmenorrhœa of a neuralgic character it is possible at times to benefit speedily; while menorrhagia, which so often depends on a condition of debility and relaxation, is not infrequently relieved by a short course of general electrization.

Catarrh (rhinitis). In connection with the use of the posterior nasal syringe, the galvanic current is most effectual in relieving chronic catarrh of the nasal passages. I speak on this point with much confidence, since I can refer to several cases of catarrh of years' duration that were cured completely and permanently and mainly by localized galvanization. One of these cases to which reference might be made was referred to me by Dr. Roosa, of New York. The patient, a lady aged thirty, had suffered from an aggravated form of the disease for eight years. The symptoms had resisted ordinary methods, but under the treatment described recovery was complete in three months.

Nervous aphonia. This condition is occasionally relieved by external application of either the galvanic or faradic currents, but our main reliance must be in applications directed to the chordæ vocales and surrounding parts.

Disease of the male genital organs. The beneficial results accruing from the use of electrization in certain diseases of the male genital organs would, if time permitted, justify some extended remarks in this connection. In both spermatorrhœa and seminal emissions uniform results are not to be expected, so dependent are they for cause and continuance upon contingencies beyond the physician's control. The reproductive function is so intimately connected with the central nervous system that in many cases of spermatorrhœa, especially when associated with hypochondriasis, galvanization of the brain, spinal cord, or sympathetic exerts a direct beneficial influence. This method, combined with localized faradization and galvanization, is measurably successful. Cases of impairment of sexual power offer even a more uniformly favorable prognosis, so far as electrical treatment is concerned, than the conditions just considered. So encouraging indeed has been the average result that in no case, after ordinary remedies have proved unavailing, should the patient fail to be submitted to the influence of electrization.

Nervous exhaustion. It is in the treatment of the various forms of functional nervous affections, of which excessive debility is the principal symptom, that the tonic influence of general electrization is most decidedly and satisfactorily manifest. Cases of nervous exhaustion are so uniformly relieved by a persistent course of general electrization that when they obstinately resist its influence we have good cause for suspecting the existence of unrecognizable organic disease. Many conditions which are even thus complicated are relieved in their symptoms, although ultimately they may progress to positive disease of the nerve centers.

Nervous dyspepsia. In nervous dyspepsia general electrization is as effective for good as in the above-mentioned condition; and hypochondriasis, both as a symptom of dyspepsia and as a distinct affection, yields in many cases most readily to treatment.

Electrolysis. The limits of this paper will not admit of any extended or very satisfactory discussion of this subject and its application to disease. It is well known that when any fluid containing salts in solution is submitted to the action of the galvanic current certain interesting and uniform results may be observed. Iodide of potassium, which is very readily decomposed, yields at the positive pole iodine and oxygen, and at the negative pole hydrogen and alkali, and the solution is soon changed to the color of iodine. In electrolyzing raw meat we find that oxygen, acids, and albumen go to the positive pole, while hydrogen, alkalies, and coloring matter go to the negative; and in proportion as its watery constituents disappear the meat becomes dry and changed in color, and as the disintegrating process goes on the parts near and between the poles shrivel and harden until they assume the appearance of a charred mass. The law governing this disintegrating or electrolyzing process may be thus stated: if chloride of sodium, acetate of lead, and water are electrolyzed, the chlorine, peroxide of lead, oxygen, and hydrogen which are evolved are definite in quantity, and are electro-chemical equivalents of each other; and according to Faraday, who discovered this law, the electrolytic power of a current of electricity is in direct proportion to the absolute quantity of electricity which passes. When we come to test these principles in the treatment of morbid growths and other diseased conditions, it is found that the results are such as to excite much interest even among the most skeptical. That the electrolytic power of the galvanic current is sufficient in many cases to dissipate tumors, both malignant and non-malignant, is beyond question; and that it is able, by reason of its subtile diffusive influence, to destroy more completely and thoroughly the reproductive power of malignant growths than the knife or caustics, can hardly be doubted.

Rapid effects in a case of scirrhus. One of the most remarkable instances of the rapidity with which it is possible, under

favorable circumstances, to influence a cancer by electrolysis occurred some months ago in an operation which I performed for Prof. Frank Hamilton in the presence of the medical class of the Bellevue Hospital Medical College. The patient was a woman afflicted with a true scirrhus of the breast, about the size of a small orange, and extending far into the axilla. Two operations, ten days apart, not only relieved the patient of every trace of the intense pain from which she had so long suffered, but entirely dissipated all enlargement of the axillary glands, and reduced the size of the tumor more than one half. Our clinical note-book affords a number of tumors of different character treated with complete success by means of electrolysis, but time will not allow me to give any detailed account of them in this connection.

Erectile tumors. Erectile tumors especially are so uniformly cured by this method, and with no resultant scar or other ill effect, that it is really a pleasure to operate upon them. In the case of a little child about a year old, upon whose face, near the angle of the lower jaw, a tumor of this character had existed from birth, electrolysis was completely successful. The patient was placed under the influence of chloroform, and two platinum needles, insulated to within one third of an inch from the points and connected with the positive pole, were introduced into the two lower quarters of the tumor; while two steel needles, connected with the negative pole and insulated in a similar manner, were thrust into the two upper quarters. The current from twelve medium-sized cells of a zinc-carbon battery was allowed to pass for ten minutes, at the end of which time the coagulation of the blood was complete. Absorption of the clot rapidly became manifest, and in four months it had entirely disappeared. In subsequent operations I have used steel or gold needles at the positive pole, since the oxidation which these metals undergo in all probability tends to accelerate coagulation.

In referring again for one moment to cases of scirrhus

I would remark that where electrolysis, as is sometimes the case, fails to produce any marked impression when its action is confined to the diseased mass, it may be proper to circumscribe the base of the tumor by introducing ten or twelve needles. By this method the current will indeed act upon the muscular tissue beneath, but it is followed by no bad results, while the cancer itself can be made to slough off.

Galvano-cautery. One great objection to the use of the galvano-cautery has been the difficulty of obtaining and managing the necessary apparatus. This difficulty is now being very successfully met, and such apparatus as is needful for most of the purposes of cautery is readily obtained. It has been more or less successfully employed for the removal of tumors, cauterization of ulcers, treatment of fistula, amputation of diseased organs or parts of organs; treatment of neuralgia by cauterization, and so killing the nerve; treatment of prolapsus uteri by cauterizing the vaginal walls with the burners, and thus causing inflammation, suppuration, and cicatricial contraction. In the amputation of such parts as the neck of the uterus, polypus in the throat, etc., that are difficult of access, this method is invaluable. The platinum wire can be accurately adjusted before being heated. There is little pain after the operation, and it saves all hemorrhage. Its use is undoubtedly destined to be greatly extended.

In the foregoing pages I have endeavored to give as compactly as possible some general idea of the distinguishing features of the different forms of electricity, and the very extensive use to which it may be put in the treatment of disease. We claim for it no greater consideration nor higher place than clinical experience justifies. Like other remedies, it has its ardent and indiscreet partisans, but above all other remedies has it been neglected and condemned.

NEW YORK.

PHTHISIS.

AN ADDRESS DELIVERED BEFORE THE KENTUCKY STATE MEDICAL SOCIETY.

BY J. J. SPEED, M. D.

Common civility is much; a common brotherhood is more. The one has prompted us to bid you welcome; the other bids us spread before you our choicest gifts. And while we hold you as brothers gathered for a day under a common roof, it is due to you as to ourselves that the day be made profitable as well as pleasant.

With the view then of contributing my share, infinitesimal it may be, to the value and pleasure of this entertainment, I propose to offer you a running commentary upon the very latest expression of the English mind upon the subject of Phthisis; that singularly delusive malady which blights by a touch the glowing cheek of youth and plants a hectic for its rose, and, while draining drop by drop the life-blood, lulls into a dreamy, hopeful lotus-life the victim of an insidious tuberculosis.

Of comparatively little value are the opinions of ordinary observers when based simply upon what they themselves have seen; but when an educated man of fitting talents has devoted ten years of mature life to the investigation of a given subject his opinions are entitled to earnest consideration, and when this ten is multiplied five times we should weigh very carefully his conclusions before setting them aside as unworthy our acceptance. Dr. Williams, of the Brompton Hospital, is not only this educated and earnest man, but the sphere of his action and his thought is one of the world's great marts, where the highest philosophy has long battled with disease in all its protean shapes. Thus while the country practitioner, with his two cases a year, is on the way toward the truth, and

has some dim vision of it; and while the city physician, with his ten cases, is still further on the way, and has some better view; surely neither of them can claim to stand as near and have as clear a vision of the great outline, with its rough points and its delicate shades, as one who stands amid the "central roar of London" and counts his cases by the thousand.

What does this half century of study teach us? I think much, very much. One of the first sentences in the book sounds the key-note to his whole philosophy: "Pulmonary consumption arises from a decline or deficiency of vitality in the natural bioplasm or germinal matter; and this deficiency manifests its effects not only in a general wasting or atrophy of the whole body, but also in a peculiar degradation (chiefly in the lungs and lymphatic system) of portions of this bioplasm into a sluggish, low-lived, yet proliferating matter, which instead of maintaining the nutrition and integrity of the tissues (which is the natural office of the bioplasm) clogs them, and irritates them into a substance which is more or less prone to decay, and eventually involves them also in its own disintegration and destruction. This degraded bioplasm, which I will call *phthinoplasm* (from '*phthino*,' I waste; a wasting or decaying forming material), may be thrown off locally as a result of inflammation, or it may rise more spontaneously in divers points of the bioplasm in its ordinary receptacles, the lymphatic glandular system; and then it commonly appears in the form of miliary tubercles scattered through the adenoid tissue of the lungs."

Thus we have brought before us two distinct classes of causes, the general and the local. The general causes are family predisposition, want of pure air and good food, continued fevers, scarlatina, measles, cessation of discharges, miscarriages, bad confinements, over-lactation, and mental depression. Local causes, originally limited, but ultimately extending to the whole system, are bronchitis, hooping-cough,

croup, pleurisy, pneumonia, asthma, trades giving rise to dusty or gritty atmosphere, and injuries.

The origin of tubercle is still involved in great obscurity. It is not held now, as taught by Laennec, to be of spontaneous origin. Burdon, Sanderson, Villemen, and Wilson Fox have established its possible production by inoculation, thus leading toward the idea of infectious origin. The source of infection being some point of irritation, distant, it may be, from the detected tubercle, but finding its way very surely to a nidus suited to its development. Nor is it analogous to the specific growths, like cancer, but "approaches to the common lesions of nutrition, such as pus, lymph, and other hyperplasms." "The lesion originates either in some form of inflammation or in a perverted nutrition of the textures of the lungs, all tending to further degradation and consequent destruction of the parts." Prof. Bennett says tubercle is an exudation, possessing deficient vitality, and may be poured out into all vascular textures in the same manner and by the same mechanism as occurs in inflammation; and, from deficient vital power, exhibits only low and abortive attempts at organization, and more frequently results in disintegration and ulceration."

Virchow regards tubercle as a new growth, having two forms, the cellular and the fibrous, and resulting from inflammation. Fuller, in his broad, philosophic way, says "that while consumption is essentially a constitutional malady, intimately connected with perverted nutrition and imperfect sanguinification, *why* disturbance of the system should tend in certain instances to the production of tubercle is one of the mysteries which we shall probably never unravel." And so on *ad infinitum*. No multiplication of authorities would bring the subject more clearly before you.

How little faith Dr. Williams has in the popular idea that the hereditary taint must influence the development of tubercle is shown by his square assertion of the sufficiency of local

causes, even injuries, to their production. It has been, and is to-day, held by many that family predisposition is necessary to give direction to local causes in the setting up of tuberculosis. But Dr. Williams teaches that this condition is often reached without any preëxisting family vitiation, and is "due to the presence of various kinds of phthinoplasm, a withering or decaying modification of the proper plasma or formative material of the body."

Regarding this then as a reasonable stand-point from which to take an outlook over a wide field, and with an eye to preventive measures, and bearing in mind the antagonistic ideas of lowered vitality on the one hand and good building material on the other, decay and nutrition, we should say that whatever influences tend to lower the vitality, degrade the bioplasm, vitiate the healthy, germinal matter, may establish points of departure for a decline which, under the influence of that force which Dr. Williams calls phthinoplasm, is conducted by degrees more or less rapid to that totality known as consumption.

Dr. Williams sketches for us two cases: "A man of middle age is attacked with fever, with pungent heat of body, cough, viscid expectoration, extreme oppression, and overwhelming weakness, resembling that of continued fever, brown tongue, sordes on the teeth, and occasional delirium. The vesicular breath-sound is superseded everywhere by bronchial rhonchi and mixed crepitation. This case might be supposed to be one of universal capillary bronchitis, with general pulmonary congestion. So it is; but this is not all. In spite of remedies the breathing remains short and difficult, the pulse becomes more rapid and feeble, the lips, cheeks, and nails become livid, clammy sweats break out, and the patient dies in the third or fourth week from the attack. The lungs are found congested, and the bronchi loaded with viscid mucus; but more than this, innumerable miliary tubercles are scattered throughout the pulmonary tissue, and these are the obvious

cause of the intractability of the case. They break out spontaneously, like the eruption of an exanthem, and by their numbers and bulk induce such an amount of obstruction and congestion in the lungs as to destroy life before there is time for any considerable degeneration or softening to take place. This *acute* tuberculosis is the worst and most rapidly fatal form of consumption.

"The second form of consumption begins with pneumonia. The patient, generally a young subject, is of consumptive family, and may have previously had a cough, and occasionally hæmoptysis. The fever attendant on the inflammation may not be very high at first, and the expectoration by no means so viscid and rusty, nor the crepitation so fine and even, as in simple inflammation of the lungs; but the symptoms are more persistent. The pulse and respiration remain frequent. The heat of the body, particularly the chest, continues remarkably high, almost burning the ear as you examine the back. But this intense heat is alternated with occasional chills and profuse night-sweats. The cough is distressing, and the expectoration opaque, purulent, and clotty. The flesh wastes and the strength ebbs away. The appetite does not return, and the progress of consumption and decay is rapid. Auscultation reveals the steps of the destructive process. The affected part, one side or both, becomes dull on percussion, only varied with the cracked-pot note from the gurgling within. The loud tubular sounds are replaced by coarse crepitation, and the diffused bronchophony is modified into detached islands of voice, loud and pectoriloquous, or into the snuffling or whispering sounds equally characteristic of cavity. This form of *galloping consumption* may also prove fatal in a few weeks. The lungs are found in a state of consolidation little more dense than the hepatization of pneumonia, but their red is mottled with gray and yellow patches of tuberculous or aplastic matter, and excavated into numerous small cavities communicating with the bronchial tubes, and containing more or less

of the compound matter which was expectorated during life, consisting of mucus, pus, degenerating epithelium, and exudation matter, with disintegrated fragments of lung tissue. When not too extensive, this form of acute phthisis may be arrested and brought to a chronic state; and the chance of this result will very much depend on the recovery of appetite, and the power of the stomach to bear strong nutriment, tonics, and, above all, cod-liver oil."

These are graphic, telling pictures, and may well startle, like a vision of doom, the victim and his medical adviser. But in a large majority of cases the blow is not so overwhelming, the destructive process is less active, the progress is less rapid, and we have time and means to resist its inroads and fortify the system against its operation. How fortify?

Just here Dr. Williams passes in review almost all the conditions of man's being: food, air, light, temperature, clothing, exercise, mental and moral states; teaching clearly and well what we ought to do and ought to be.

Perhaps to us, who are a well-fed and reasonably well-cared-for people, the most important prophylaxis may be drawn from a higher regard for proper clothing, and a better control over the passions, all of them.

The physical exposures of our women and of our children, in a climate characterized by frequent and abrupt transitions, is in such utter violation of all laws of physiology that the medical man stands amazed in the presence of the monstrous folly; amazed and powerless, for he is driven from the field of his own thought-work by an inexorable and relentless tyrant; a tyrant whose edict reads "nakedness" instead of "clothing," "exposure" instead of "protection."

To the bright girl of sixteen the doctor's suggestion comes, like the idle wind, unheeded. It is the morbid whim of an old fogey, who has had his day and forgotten the follies of his own life, and she promptly puts his counsel aside. To the same pale girl at seventeen that suggestion has become

a grave question, which will not be put aside, for the idle wind has dried up the very fountains of her being; and the low-necked dress of last winter, which exposed such rounded shoulders and such beautiful charms, is pieced out this winter to hide the skeleton form which tripped lightly away from the doctor and bowed so readily before the tyrant fashion.

If women could only be made to understand the meaning of the word *protection*: that it involves the idea of substantial underwear, thick-soled shoes, and reasonable party hours, the death-rate would be sensibly and constantly diminished. But there are some subjects upon which it is only a waste of paper to write, and this is one of them. The fatal characteristic of Ephraim seems to have descended to fashionable women. They are joined to their idol, and demand to be let alone. But with authorized emphasis I tell you you can not with impunity violate the law which nature has stamped upon human organization. The physical as well as the moral law has its "thou shalt and thou shalt not." Detectives are on your track; your offense will be discovered, judgment will go against you, and your punishment secured. Nor are these arbitrary laws; they are organic, incorporated in the constitution itself, with no provision for their repeal. You must obey them or pay the penalty of their infraction. Fable it may be that the hounds of Acteon did turn upon and rend him for his discovery of Diana naked; but the Nemesis which waits upon violated law is not a fable, and the delicate textures of your transcendent beauty will very surely be rent and torn and bled to pallid whiteness by this inexorable power.

And then that other question of the passions—wide-spread in their operation and overwhelming in their power. What shall we say of the passions, the great Moloch-fires which consume by inches what they fail to blast by a touch? With the voice of a trumpet let the watchman on the walls say this, that phthinoplasm is the attentive handmaid, ever ready, following closely in the wake of passion; that the powers which are

weakened by the mistress are rapidly wasted by the servant; that the race is swift and short, and the prize is always lost. Intemperance in all its phases is the foe to human health. Equipoise in all his functions and all his powers is health, and constitutes in man the *mens sano in corpore sana*. The stimulation which prompts the undue use of any power is followed by reaction. There must come the backward swing of the pendulum. "Your good cedar bow," said the Egyptian hermit to his brother, "seems well made and strong; is it elastic too?" In pride the brother drew its tense cord. "Draw harder; harder still." "Nay," said the brother, "it may break; the best bow of the best cedar may be broken." *There's your lesson*. Remember the backward swing of the pendulum; remember the bow of the hermit, and live within the law of life.

The many interests demanding attention before this convention forbid an elaborate discussion of any of them; but there are two or three points of lay as well as professional interest which require a word.

Climate. Where shall we go? is a question constantly put by the consumptive to the physician—one which taxes the judgment of practitioners, and has received a full share of attention from all writers upon this world-scurge. To my mind it has never been satisfactorily answered. Patients have been sent everywhere—North, South, East, West—on the land and on the seas; some with benefit, and some with injury. In one it seems to prolong life; in another to hasten the progress of disease. Whatever may be the underlying theory, this has been the fact touching all peoples throughout all medical history, and yet the popular mind clings with strong tenacity to the hope of life in some other climate. Climate alone is not enough, and is not all you get by change. For my own part I hesitate long before advising a patient to everything involved in the idea of a change of climate. It involves too much of certain loss for a possible but uncertain gain.

There is another question, bearing upon which Dr. Williams gives us three or four cases with rather unsatisfactory results. What is the influence of pregnancy upon the progress of consumption? Its influence, in my judgment, is accounted for by that philosophy which teaches the existence in organic nature of two forces: the one presiding over growth, development; the other over disintegration, decay. This state is one of nature's beautiful adaptations. During pregnancy she directs her energies to the development of a new being, and holds in abeyance for the time all opposing forces. This development completed and the product thrown off, the latent antagonistic forces resume their march, hastened often in that march by reason of the draft which has just now weakened the powers against which they battle. The resistance is lessened, and the victory is easier than before. This, however, is not always so. The wonder-working power of nature is shown in this, that while her forces are engaged in building up a new being, she sometimes spends her surplus energy in repairing breaches in the old.

Air. To the physician or the patient it would seem that the most superficial view of this terrible malady ought to suggest the absolute necessity for pure air, and yet constant experience shows how little its importance is regarded. The very organs whose business it is to elaborate for us vitalized blood, delicate in their structure and delicate in their manipulation of the elements supplying their chambers, these organs, upon whose accuracy so much depends, are furnished with an air loaded with impurities, poisoned before it reaches the already overtaxed and weakened tissues. Sweet waters do not flow from bitter fountains. Breathe pure air. I don't mean air free from all the impurities and offensive odors of the earth. I don't demand that. Then what? What is pure air? Air which has not been used; air with oxygen in it; air let in from out of doors; not the reInspired and reExpired air which is loaded to deadly reple-

tion with every possible emanation from the bodies of patient, nurse, and friend in a single chamber. That is poison. Not that, but air from out of doors, air laden with life, air with healing on its wings.

Food. What may we eat? Here we tread upon ticklish ground, controverted ground; a large field too this question of "food for the invalid;" too large certainly to be fenced in by a single paragraph, and yet what else is left in a short convention paper? With an eye then still fixed upon the antagonistic forces of decay and growth, of tearing down and building up, we should say meat and bread and milk and butter and eggs and vegetables and fruits, everything which goes to nutrition (for this is the central idea in the management of phthisis), eschewing sedulously the confections and trash which belong to the category of sweetmeats.

But you ask what meats, what bread, what fruits, and what vegetables? These are questions which each can answer for himself better than I can answer for him. I have had occasion elsewhere to say that the patient's stomach is worth more than the doctor's brains. Put *that* fairly, honestly to the test, and it will tell you better than I can what material it needs. The caution I should impose touches *quantity*. Eat wholesome food at will, but not *ad libitum*. The body must be sustained, but not overfed. The general government must be supported, but not by oppressive taxation. Do n't lay too heavy a burden upon your best friend. Deal kindly, generously, fairly, and your revenue is certain.

But you are ready to ask, What now is the net purport and upshot of all the latest teaching upon this subject? Is consumption curable? The trumpet here gives no uncertain sound. Yes, unquestionably yes. The voices of pathologists over all the earth unite in answering yes. By what means? Here again the answer is emphatic. Guard well and persistently all the hygienic influences which surround you; your food, your air, your light, your exercise, your rest, your

temperature, your spirits; everything which contributes to the formation and preservation of your life, material which sustains the bioplasm, which goes to the building up of human organization. These are your personal surroundings, and largely under your personal control. Secure all this, and as a part of your living use cod-liver oil. This Dr. Williams emphasizes as "the remedy." Use it not simply for a week or a month. Remember you are fighting for your life. Let the battle be for life. You buy it cheap enough at that. Indeed you can buy it in no other way. It won't do to put out the visible flame and leave the live coals to smoulder under ashes. The idle wind which first swept by you all unheeded, and after chilled your life currents, has not ceased its goings; and in some unguarded moment may come again to you, sweeping away the cold ashes and fanning into a fiercer flame the old fires. Eternal vigilance is the price of life to you. And this vigilance must be under enlightened direction. Do not imagine that you know more than your doctor. When you are far out at sea and the storms come, threatening disaster to your cherished hopes, do you throw your pilot overboard and seize the wheel with your unpracticed hand, in hope of better guidance? This is convulsion, not common sense; it is insanity, not judgment; it is irrevocable doom! No. Systematic, educated effort is worth more to you than your spasmodic struggles, struggles which belong to the paralysis of fear. Catching at straws, do you say? Yes verily, catching at straws. But what do you want with the straw? You are on the ship yet, and your pilot is still there with his trained eye and ear and hand, and his self-poise. Stand by your pilot. Remember this is your first experience upon stormy waters. Your educated pilot has carried safely many a cargo as rich over many a sea as stormy as this which so unnerves and frightens you. Stand by your pilot.

One word about the oils. Twenty odd years ago the medical mind of Europe and of this country was possessed

with the idea that "cod-liver oil" was the means by which the world was to be rid of one of the *opprobria medici*, and chemical science was called in aid of practical medicine to secure the purest and least offensive preparation of that particular oil. With great rapidity it rose in public estimation, and for a quarter of a century now has been acknowledged as the remedy for phthisis. But presently a question arose. Being used over all the earth, wherever civilization has furnished a tolerably enlightened medical corps, and a favorable result coming from every quarter, a voice clear and distinct from the millions, answering back, Yes, this is the remedy—the question, I say, arose, Is all this due to cod-liver oil? Do the waters furnish cod-livers enough for oil to cure all the earth? Possibly not. If not, then may not these uniform results be due to some principle belonging to oils, and not to any specific principle belonging to cod-liver oil? The drift of the answer to this question is toward the affirmative, and points to the idea of nutrition furnished, and not to any specific medicinal power. I believe that to this complexion must it come at last.

Let us not be arrogant, gentlemen. There are very few lines of thought upon which the human mind has traveled back and up to the essential nature of things, the ultimate. The incisive, searching brain of France, as represented by Laennec and Louis and Broussais and Audral, and the patient, delving brain of Germany, represented by Rokitansky and Virchow and Niemeyer, have struggled with untiring energy toward the hidden secret, and each has had his Eureka-shout. The broad, strong, tenacious brain of Britain has sought for and philosophized over the probable till the names of Bennett and Addison and Forbes and Pollock and Fuller and Williams are familiar to us as household words. The practical-tact brain of America, in a spirit of careful and judicious eclectism, has drawn from these vast treasure-houses whatever of value it could use; and at the bedside has proven

that, whether tubercle in its essence be this or that, we can cure tuberculosis. Broad and deep and strong are the foundations laid by those earnest Old-world investigators. Grand in design and magnificent in proportions is the temple which the scientific architects have reared to Hygeia; but, strong and grand and beautiful as it is, the crowning glory of the structure is its practical value. I believe that American doctors lead the world in their practical knowledge of its uses.

One of the old Scandinavian myths represents the young warrior as furbishing to its utmost brightness a shield which he hangs upon the ancestral walls to reflect for those at home the heroic deeds of his life. Wherever he may be, his conviction is firm that every brave, good deed will shine out from that polished shield, faithfully reproduced for those who love him. For you, gentleman, the private chamber of cottage and mansion, in city and country, in hill and valley, over all the land, holds a shield which tells all the goodness, all the strength, all the gentleness you show in this life-battle. The grateful heart of the strong man whom you rescued, the warm heart of the gentle woman whose life you saved, is a brighter and surer mirror of your virtues than the shield of the Scandinavian youth. Let us see to it that this mirror reflects nothing but virtue, patience, courage, and all noble doing.

LABOR COMPLICATED WITH PERITONEAL ADHESIONS OF THE UTERUS.

BY G. W. H. KEMPER, M. D.

Mrs. M., of delicate stature, age about nineteen, primipara, had false labor-pains most of the time during the days and corresponding nights of the 31st of January and 1st of February, 1872, which were finally quieted by morphia at mid-

night of the last date mentioned. At eleven o'clock A. M., February 2d, while free from pains, the membranes ruptured and the waters drained away. Labor began at once, and I was summoned. At noon I found the pains regular and quite frequent, and of an expulsive character. By the touch I could distinguish the fetal head through the uterine parietes, but could not discover the os uteri. The pains continued to increase in force, frequency, and duration. At three P. M. I found the condition of the parts unchanged. I now introduced my middle finger into the vagina and swept around the pelvic walls until I found the os, which barely admitted my finger-tip, high up, and pointing directly toward the left side of the pelvis. I hooked my finger into the os, and gently and steadily drew it downward toward the vaginal outlet.

The dilatation now proceeded rapidly, and in one hour the first stage of labor was completed. The vertex was to the left acetabulum. The pains increased in force, and the head was soon driven down against the perineum, which yielded slowly. The *right side* of the os protruded outside of the vulval orifice, even with the right labium, nor could I compel it to retract. The *left side* of the os was beyond my reach. I mention this condition to show the obliquity of the uterus, which the reader is requested to bear in mind, in connection also with some other facts to be mentioned, as well as the locality where I discovered the os.

Gradually the soft parts dilated, and at 7:20 P. M. the head was born. The pains now were quite feeble, and in spite of all my efforts the shoulders did not follow for about ten minutes. The child, a male, afterward ascertained to weigh ten pounds, presented no evidence of life; nevertheless I resorted to the usual means used for resuscitation for several minutes to no purpose. I now gave my attention to the mother.

Upon examining the uterus through the abdominal parietes I found the circular fibers alone contracting and embracing

the placenta. The fundus of the uterus extended upward and to the right side, reaching nearly to the diaphragm. I could distinctly trace the outline of the placenta, situated about the middle of the uterus, while the fundus was clearly pointed. I was unable to push the uterus toward the median line. I maintained steady and firm pressure over the uterus, and at the same time made gentle traction upon the cord.

In thirty minutes from the birth of the child the placenta was expelled. I now hoped the uterus would assume the usual globular form; but it only became more cylindrical in shape, while the fundus remained at the point above described. I was still unable to push it toward the median line. The fundus was evidently fixed to some object. Fearing hemorrhage from such irregular contraction, I gave ergot, and continued manual pressure upon the uterus for one hour, during which time considerable but not an excessive amount of blood was lost. I then applied a binder firmly, and remained near my patient for two hours longer, and at my departure I found the position and shape of the uterus unchanged.

During the next day (3d) Mrs. M. informed me that "something had given way in her right side under her ribs." Upon examination I found the uterus readily movable in the abdominal cavity, so that I could easily push it to either side. It did not extend as high up as yesterday, yet much higher than is usual, and the shape still cylindriciform. She had occasional excessive sweatings, and considerable nervous excitability, that necessitated my attendance for several days; and I repeatedly noted the changes of the uterus from one to the other side until it became reduced in size.

At a meeting of the Obstetrical Society of London, 1869, Dr. Graily Hewitt read a paper upon "Peritoneal Adhesions of the Gravid Uterus a cause of Post-partum Hemorrhage," an abstract of which will be found in the Half-yearly Abstract, Vol. L., page 244; and also a notice of the same in a review of the transactions of said Society in the American Journal

of Medical Sciences for October, 1870, page 491. Dr. Hewitt states that, so far as he is aware, this subject has not been treated of by obstetric writers. He narrates several cases, one fatal, where the autopsy revealed "firm, tough broken-off adhesions at the top and back part of the uterus, giving it quite a shaggy aspect."

In the discussion which followed the reading of this paper the theory advanced by Dr. H. was assailed by most of the speakers as not being the correct one. I am not aware that anything has been written before upon this subject in this country, and a desire to help elucidate facts (if my diagnosis has been correct) has prompted this article.

The more salient points of diagnosis in this case are possibly not of much value when taken singly; but are, to my mind, conclusive when taken collectively:

1. More or less constant pain in right side under ribs.
2. Detention of the shoulders at the outlet, probably from deficient contraction of the fundus.
3. The obliquity of the uterus before and its peculiar shape after the birth of the child; the fundus reaching so high, to the right, and immovable. Also the tardy expulsion of the placenta.
4. The sensation experienced by the patient of something giving way the next day after labor, followed by marked mobility of the uterus.

MUNCIE, IND.

Reviews.

Boylston Prize Essay: Recent Advances in the Pathology and Treatment of Diseases of the Skin. By B. JOY JEFFRIES, M. D. Boston: Alexander Moore. 1871.

Dermatology has been for some years a most fruitful source of medical literature; and from the swarm of publications devoted to this subject Dr. Jeffries has essayed to eliminate and bring together, in a concise thesis, the recent advances in the pathology and treatment of diseases of the skin. That the author has produced a work worthy of reward would seem proved by his having received the prize at the hands of the Boylston Medical Committee, composed, as it is, of gentlemen learned and able in the profession.

The first portion of the essay is chiefly occupied in a "free showing of the dermatological hand," as he expresses it; and the arts, tricks, and follies of the charlatans are exposed and commented upon without mercy, and, it must be confessed, with great justice. The greater part of the vast mass of the literature on this specialty thrown off from the press recently, says Dr. Jeffries, is worse than Hebrew to any but the professed dermatologists, and of but little or no service to them. He further declares that the more a practitioner studies almost any of these publications the more he becomes lost, mystified, and the sooner disgusted, unfortunately not with the author, but with dermatology. We agree heartily with the essayist that "there has been plenty of motive but little necessity for a great deal of dermatological literature. A book or a monograph is soon patched up, the more unintelligible and the

less clear and concise the better, and through it a reputation is soon gained; for cutaneous medicine is so little understood in the profession at large that a book means an author, and the idea of an author means a knowledge of the subject. The more *outré* the thoughts the more learned does the writer naturally seem, particularly if a little of other peoples' original ideas are ingeniously interwoven, so as to appear striking and new." "Recognizing this as one of the curses of medicine at large," he says, "we must confess that it does seem as if unfortunate dermatology had to bear more than its fair share of pretenders' efforts in all three of the principal languages." Of dermatology itself Dr. Jeffries speaks as candidly and justly as he does of dermatographers. Dermatology is at present, he declares, in a sort of "nomenclature condition;" and is likely to continue for some time to the majority of medical men an unintelligible and unmeaning classification, and a more or less heathenish nomenclature. He thinks the time has not yet arrived for a classification of cutaneous diseases; that we have not a sufficiently profound and exact knowledge of the pathology and therapeutics of the subject to enable us to make a sound and lasting classification. Nor does he recognize the necessity for any classification in the study and practice of dermatology. Some general order for bringing cutaneous diseases before his class is, he admits, necessary for a teacher; but "the less the student hears of the special order or classification, and the more of the particular disease, its symptoms and treatment, the better for him."

Dermatology, he avers, is comparatively a simple specialty; and this, in our judgment, is very true, were it not for the heathenish, elaborate, contradictory, and unsettled nomenclature, and the mass of trash copied from one book into another, mingled with our very limited capital of established therapeutical and pathological facts.

Dr. Jeffries thinks that the American dermatologist who has studied in the continental schools is often disappointed

to find, in prescribing the same remedies in the manner he saw done with good results on the other side of the water, that he does not meet with like success. We are inclined to the opinion that the cure of patients in the continental hospitals is, generally speaking, a very minor consideration; and we have an impression that hospitals are considered by continental medical men rather as laboratories for scientific experiment than as institutions for the care and relief of the indigent sick. Practice, however, as seen and taught in the hospitals of Great Britain, is, according to our experience, applicable to the same class of persons in other countries.

The author wisely insists on the importance of plates being attached to works on cutaneous diseases; also that dermatology can not be successfully taught without the diseases themselves, or their portraits or colored casts, "which for lecturing are even better than the patients themselves." Dermatology can not be learned from books alone; nor, in truth, can any other branch of medicine. Sydenham advised his young friend, who asked in what book he would recommend him to commence his medical studies, to read *Don Quixote*. From what Dr. Jeffries says of dermatology and dermatographers, we suspect he would advise the student who might ask him what work on skin diseases to study first to begin with *Mark Twain* or *Artemus Ward*; and we are not sure that he would be very injudicious in the advice.

Dr. Jeffries believes in *Hebra*. The French works, he says, "are unsatisfactory, and almost without value for reference." For *Wilson* he professes the greatest respect as a "dermatologist of vast experience, and as a man of independent thought and acute observation;" but charges him with having "incalculably hurt dermatology by his individual idiosyncrasy for multiplying and altering dermatological nomenclature, and changing established modes of spelling."

For the labor bestowed upon this essay the author deserves much praise. He gives a list of one hundred and twenty-one

bibliographical references, dating from the year 1814 to 1871. In many instances the views of authors are compendiously given; in others, merely the titles and character of works are mentioned. In pathology he is elaborate, recording the latest discoveries and theories, and giving both sides of disputed questions. Upon the subject of treatment he is not, we think, altogether so satisfactory.

In point of style, he is not invariably as lucid as the importance of his topic demands. For instance, he says "specific inflammation of the mucous membrane of the generative organs produces no cutaneous disease; the chancre-sore also is not followed by eruptions, but *constitutional syphilis imitates*, on the common integument of the body, almost *every other affection* this organ is subject to, even the results of the presence of animal and vegetable parasites."

The exanthems, small-pox, measles, and scarlet fever he considers as belonging to general medicine. He declares—and we concur with him—that pitting does not occur in more than half the cases of variola, and that when the pustules are deep-seated no treatment prevents pitting. Psoriasis he speaks of as incurable, and considers its cause undetermined. Recent experience has convinced us that it is connected with the strumous diathesis, and is curable by cod-liver oil and iodide of iron, assisted, of course, by proper local treatment. He mentions ergot of maize as having proved beneficial in psoriasis; but apparently it acts by depressing the general health, and is most probably merely temporary in its effects, as are purgation and starvation.

Ichthyosis is considered incurable, though palliatives are recommended. Like psoriasis, we deem this a scrofulous affection, and have had cases to yield to the same internal treatment, assisted by inunctions of cod-liver oil and glycerine and by vapor-baths. Eczema he attributes to many causes, local and constitutional, hereditary and acquired. Treatment depends upon its stage and cause, and may be local

or constitutional. Stimulants and lenitives, dry powders and bandages, and exclusion of air by impervious cloths, are all valuable remedies. Impetigo is held to be merely a consequence of eczema, except when due to burns, scalds, cutaneous poisons, etc. Doubtless such is the usual source of impetigo, but cases have come under our observation which were clearly independent of any of these causes. Contagious impetigo, described by Fox and recognized by Allbut and Anderson, he does not admit as yet proved to exist. Ecthyma, he thinks, is not a distinct disease, but merely a phase of some constitutional affection in which the skin exhibits ecthymatous bullæ or pustules. Rupia, he agrees with Hebra, is always syphilitic. In both propositions we heartily concur. Pemphigus bullæ contain, according to Dr. Jeffries, "first serum, then pus, or sometimes blood." Most certainly pus is not a usual condition in pemphigus. Quinine, he states, has power to check the fever preceding this eruption, and even the eruption itself. Prurigo, he says, "is a fearful and incurable disease, fortunately not common." Pruritus is its terrible symptom. It consists of papules, and occurs about the roots of hairs. We have had sometimes good results from the bromides internally in cases of true prurigo, though not exactly the disease described by Hebra. In a case in an adult, apparently due to severe spinal injury, we found no treatment of any service.

As to the pathology and treatment of urticaria, he thinks "but little advance has been made in this most singular of skin diseases." He has but little to say of its treatment. In this locality we find urticaria, with rare exceptions, clearly due to malarial poisoning, and more or less intermittent, or to improper aliment or digestive aberration. Quinine, antacids, emetics, and purgatives usually relieve it promptly. Herpes zoster, according to Dr. Jeffries, "still remains a game we do not understand." The bromides have acted well in this affection in our hands. Herpes progenialis, he declares, is

in no way connected with venereal disease; sometimes is periodical. No means are known to us of preventing it. Irritants should never be employed in its treatment. During the past year we have seen many cases, most of which were due to acidity of stomach and some to malaria, and were cured by bicarbonate of soda and other antacids internally; astringents and ablutions locally facilitating the cure.

Acne disseminata we can not consent to consider "the bane of dermatologists," as Dr. Jeffries terms it. We deem it one of the most certainly remediable of cutaneous maladies. Careful, frequent, and prolonged warm baths, assisted by the flesh-brush, severe friction, and such other means as shall remove the sebaceous deposits, with stimulants sometimes and sometimes astringents locally, arsenic internally, and attention to general health or functional disturbance, as the case may demand, will very certainly yield satisfactory results. Great attention to the skin may be required for a long time, but it is doubtful if any case is incurable. Similar treatment of acne mentagra, assisted by carbolic acid, we find equally satisfactory. For acne rosacea "incision of the eruptions is recommended, and touching with tincture of perchloride of iron." Removing the cause, treating the general health, if called for, using astringents, or touching with nitric acid, we consider better treatment. Anthrax and furuncle Dr. Jeffries treats alike by incision. Quinine and iron internally, and carbolic acid externally, we are confident would yield him better results. Malignant pustule, he says, "needs the knife and caustic at once." Such procedure we hold to be not only unphilosophical, but injudicious. Certainly it is no local disease. We have observed the best results from iron and quinine internally, and lenitives and anodynes to the pustules. Alopecia, he states, both general and areata, may be produced by arsenic. Sudden blanching or partial loss of color in the hair has been found to be "due to the presence of air in the medulla, and sometimes in the cortical portion."

Of the vegetable parasites of the skin Dr. Jeffries mentions favus, herpes tonsurans, pityriasis versicolor, sycosis, eczema marginatum, and one in the nails, as being generally recognized. Wilson and his "imitators," as he calls all who agree with the great English dermatologist, deny *in toto* the existence of these parasites. Hebra, Hallier, Peck, and Köebner hold that all the parasitic diseases are due to the same growth.

Carbolic acid internally for diseases of the skin, in doses of six to nine grains daily, reduces hyperæmia, diminishes the quantity of epidermis formed, and acts upon the peripheral nerves in such a way as to overcome the itching. These are results recorded by Kohn and Newman, as seen in Hebra's wards, Dr. Jeffries tells us.

We have not noticed all the affections treated of by Dr. Jeffries, but have called attention to those portions of his work which seem to us of the highest value. It is a work well worthy of perusal, and we commend it both to the dermatologist and general practitioner.

L. P. Y., JR.

The Endoscope: Considered particularly in reference to Diseases of the Female Urethra and Bladder. By ROBT. NEWMAN, M. D., New York. From the Transactions of the Medical Society of New York. Albany, 1872.

We believe we echo the voice of a large number of the profession in saying that diseases of the female urethra and bladder are almost totally neglected in works on maladies of women; and yet these diseases are numerous enough, serious enough, often difficult to diagnose, and the therapeutics often still more difficult and uncertain, to justify their fullest consideration. Indeed we know of no special treatise more needed just now than one devoted to such disorders, and he who meets this want will reap a harvest of usefulness, if not of fame as well.

Dr. Newman's monograph is an admirable contribution to our knowledge as to the diagnosis and therapeutics of some of these diseases. The author describes the endoscope, Desormeaux's he prefers, and the accessory instruments, the descriptions being assisted by excellent illustrations. He then gives clinical reports of cases he has had under treatment, very good chromo-lithographs accompanying these reports. Those who know Dr. Newman will bear willing testimony to his ability, and to the fidelity with which he has worked out some most important problems in diagnosis and therapeutics.

T. P.

Small-pox: The Predisposing Conditions and their Prevention.
By DR. CARL BOTH. Boston, 1872.

An eminent Dublin prelate, now no more, held that salt was not necessary for human beings, and that the taste for it was artificial; but Dr. Both asserts "that the proper use of salt is the scientific and most certain preventive of small-pox;" that Boston is comparatively free from the scourge because the inhabitants use so much salt, etc. In a word, let the old adage, "An ounce of prevention," etc., be changed into, an ounce of salt is worth a pound of vaccination. Salt is to be the savior of the world—from variola. Salt, the most certain preventive of small-pox, and saliva,* the appropriate application for wounds, are the great medical discoveries of the hour!

T. P.

* Dr. F. P. Henry (Medical Times, April 1, 1872) states that saliva is nature's lotion for wounds, ulcers, or contusions; that the child who cuts or bruises his finger puts it in his mouth; that adults in similar cases do likewise—how admirably the fable as to man's first learning to eat oysters would come in as an illustration!—that the inferior animals manifest faith in saliva, for they lick their sores; and that a fluid resembling saliva could be readily made artificially, etc. We judge the writer in earnest, though he does proclaim his views on the 1st of April. It is hardly necessary to remind our readers that in one case recorded in sacred history, where dogs licked the sores of a human being, the patient died, whether *post hoc* or *propter hoc* we are not informed; and that the use of saliva in some inflammations is a good deal older than the Christian era.

Clinic of the Month.

EPIDERMIC GRAFTING.—Mr. Anderson* objects to the title of "skin-grafting" as not strictly accurate, and liable to lead to deceptive views both as to the pathology and the results of the process.

The objects of epidermic grafting are, first, to procure the cicatrization of a granulating surface where the natural processes of repair appear to be insufficient or more or less exhausted; second, to hasten the healing of an indolent ulcer; third, in the case of any active and healthy granulating surface merely with a view to increase the natural rapidity of cure, and abbreviate the usual period of treatment as much as possible; and fourth, to diminish cicatricial contraction and consequent deformity, the presence of a number of islands of repair tending to lessen the traction upon the adjacent healthy skin.

"The processes to which the name of skin-grafting has been applied have a rather wide range. Large portions of the entire thickness of the skin have been successfully transplanted, and new centers of growth have been initiated from almost invisible segments of integument, from mere scrapings of epiderm, and even from free epithelial cells contained in the serum of a blister. The smaller portions have been engrafted by simple superposition, by being forcibly thrust into the granulations, and by implantation into incisions made for their reception. The site chosen for the operation has hitherto been an area of granulations; but there is little doubt that the grafts could be made to take root on a freshly-exposed

*St. Thomas's Hospital Reports; Vol. II.; London, 1871.

surface. The grafts may be taken from the patient himself or from another person. A recently-amputated limb too has been found to yield serviceable material; and we may hence assume that skin removed from a body within a certain period of death would be available. Where it is determined, however, to obtain the required portion of integument from a foreign source, it will be well to bear in mind the possibility, alluded to by Dr. Gull, that certain morbid conditions may thus be inoculated.

"The uncertainty in the results of the treatment is greater than can well be accounted for by individual differences in the constitution and age of the patient, and in the character and condition of the granulating surface under notice. In order to ascertain how far the issue is influenced by external circumstances, I have made a series of experiments which have led me to believe that ill success, in a considerable number of instances, depends almost entirely upon the method of operation adopted and the subsequent dressing. Ulcers of large size were selected, and upon each were grafted portions of skin in definite situations and order, an accurate tracing showing the outline of the margin of the sore. The position of the transplantations was then taken, and daily observations of progress could be made with the greatest exactitude. The grafts were in certain parts merely laid upon the granulations, in other situations forcibly imbedded, and in others inserted into small incisions about one sixth of an inch in depth. In other cases the grafts consisted of portions of the horny layer of the epidermis, separated by vesication or by scraping; portions involving part of the rete mucosum, but not containing any of the papillary structure; portions including the papillae, but not the entire thickness of the cutis vera; and lastly, segments of the skin in the whole depth. In other instances, and in like manner, were tried pieces of different sizes, ranging from the dimensions of a small pin's head to those of a split pea; lastly, comparisons were instituted between the activity

of grafts taken from the subject of operation and those from strangers. The first dressings, in some instances, consisted of ordinary strapping applied to keep the grafts in position, and covered with lint; in others, of strips of linen dipped into water, evaporation being prevented by the use of oiled silk.

"Instead of transcribing the lengthy details of the individual experiments, I propose to convey as briefly as possible the practical deductions I have drawn from the results obtained.

"1. *As to the mode of applying the grafts.* In a few cases all the plans succeeded; and here it was noticeable that the surface grafts usually showed signs of extension some days in advance of those implanted, often as early as the third day, and maintained the advantage thus gained throughout; but on the average more than one half of the superposed segments failed to take root, and in some cases all were displaced by pus formation. The majority of those forced into the granulations became surrounded with little aræ of suppuration, and were destroyed. On the other hand, nearly all the pieces inserted into the incisions became adherent. In these cases unmistakable signs of vitality were generally visible on about the seventh or eighth day, but sometimes much later; on one occasion no evidence of existence being manifested until the end of the third week after transplantation. In this instance the sore, which was situated on a varicose and greatly enlarged limb, took an unhealthy action upon the day following the operation. All the surface grafts were swept away, and it was supposed that the implanted pieces had shared the same fate; but at the period mentioned, the granulations in the mean time having reëssumed a healthy aspect, areas of cicatrizations unexpectedly appeared in the situations of five out of the eight buried grafts. A similar peculiarity has been observed in two cases now in the hospital.

"2. *As to the depth of integument required.* More than one half of the grafts, which included the whole thickness of the

skin, acted well when imbedded in incisions, but those laid upon the surface were much less successful. Where the segment consisted of the cuticle and papillæ failure was the exception, but here the advantage was on the side of those imbedded in the incisions. Only a small proportion of the purely cuticular sections became centers of growth, and action from these points was almost always feeble and slow. In no instance did the epidermic scrapings or fragments of blisters prove of service; but Dr. Fiddes and others have been more fortunate with this plan. Where the entire depth of integument was fixed upon the surface of the sore it remained as a nodular elevation, distinguishable for months after complete cicatrization. In other instances the level of the scar was uniform. The greater success of those grafts which included the papillæ, as compared with the more superficial kinds, I attribute not to the presence of the papillæ, but to the preservation of the deepest and youngest cells of the Malpighian layer of the epiderm lying between the bases of the papillary elevations.

"3. *As to the size of the grafts.* The results of my experiments did not appear to be greatly influenced by the extent of tissue transplanted. The most minute grafts were more frequently lost than those of somewhat larger size; but it is probable that some of them did not include any of the younger epidermic cells. I have since seen portions of skin as large as a shilling readily made to adhere when fixed upon the granulations. The possibility of grafting very small segments is of importance, as we are thus enabled to start numerous centers of cicatrization by means of an inconsiderable outlay of integument. On the other hand, larger pieces of skin in its whole depth are especially adapted for the lessening of deformity and cicatricial contraction. The operation has been successfully applied by Mr. Francis Mason to fill up the frontal gap left after the operation of rhinoplasty.

"I have been unable as yet to detect any difference in the

results following the use of grafts from the patient and those observable when the material is derived from strangers. The constitutional condition of the person operated upon is a matter of some importance in prognosis, as debility, especially that induced by intemperance, will as a rule greatly retard and imperil the success; but old age *per se* appears to exercise very little influence over initiation of new growth, or over the rapidity and completeness of the process of cure. In fact, some of the most striking examples of the benefits of the treatment that have come under my notice have been supplied by patients long past the meridian of life.

"M. Reverdin placed the shreds of epidermis upon the sore, their deep surface applied to the granulations, and fixed them with strips of diachylon. Others have followed this plan, and in many instances have found that the contact of the plaster induces, as in M. Reverdin's case, free suppuration, and thus many of the grafts become washed away. The same result has occurred in several of my cases, and I have since limited my applications to strips of linen soaked in water, warmth and moisture being preserved by the use of oiled silk. Daily renewal of the dressing without disturbance of the grafts may be readily effected. As soon as extension of cicatricial tissue from the transplantation is well established, medicated dressings, varying with the condition of the granulations, may be safely substituted.

"From my own observations I feel convinced that, with careful attention to detail, failure will be very exceptional; but disappointment will occasionally occur after repeated efforts, however cautiously conducted."

DIAGNOSIS AND TREATMENT OF INVERSION OF THE BLADDER.—Mr. John Croft (St. Thomas's Hospital Reports), after narrating a case occurring in his own practice and two other cases previously reported, states that while this accident is rare, yet it is all the more important that it should be promptly

recognized and treated. "A small, pyriform, red, vascular, elastic tumor, situated between the labia, below the clitoris, and in front of the vaginal orifice; the urethra not distinguishable; the ureters exposed, and perhaps distilling urine; a history of more or less incontinence previous to the appearance of the tumor: these symptoms should lead one to recognize an *inversio vesicae*, and to distinguish such an affection from a solid polypoid growth. Mr. Holmes has described a vaginal hernia in his work on 'Diseases of Children.' In that malady the urethra can be defined in front of the tumor, which has not the red vascular appearance of an inverted vesical membrane. The best mode of reduction seems to be by taxis, and the thumb and forefinger are the best compressors. They should be used gently. If the child struggle much, it would be better to employ chloroform." In case incontinence of urine follows, faradization seems to offer a reasonable prospect of improvement or cure.

TEMPERATURE IN SERIOUS GUN-SHOT WOUNDS.—These are the conclusions of an elaborate memoir, containing numerous observations, found in a recent number of the *Archives Générales*: "1. In severe wounds from fire-arms the temperature is always reduced. 2. This reduction results from several causes, among which are nervous shock, excitement of combat and consecutive stupor, hemorrhage, finally alcoholism. 3. When a subject having a wound requiring an operation has a temperature below 35.5° C. he will die, and it is useless to operate. 4. When reaction does not occur within four hours after the receipt of the injury, the reaction being in proportion to the prostration, the patient should be regarded as very seriously injured. 5. Burns produce remarkable reduction of temperature. 6. The same is true of penetrating wounds of the abdomen; and this reduction is so much more marked as the stomach is approached. 7. The diagnosis of penetrating wounds is easy, from the

characteristic thermometric phenomena which they produce. 8. Intoxication strikingly favors the falling of the temperature. 9. Wounds from shells, other things being equal, cause a more marked reduction of temperature than wounds from balls."

GONORRHEAL OR URETHRAL RHEUMATISM.—Mr. Bond, Surgeon to the Lock Infirmary, St. George's Union, Westminster, gives (*Lancet*, March 23d) the following deduction from his observations in this disorder: "That urethral rheumatism is a slow form of pyæmic poisoning, due not to a sudden absorption, but to a gradual vitiation of the blood by a gradual absorption of the urethral discharge; that the vitiated state is not maintained independently of the local disease; that, when the discharge is thoroughly and permanently stopped the rheumatism may soon be cured, and has no tendency to return except by the access of a fresh urethral discharge."

APPLICATIONS OF ELECTRICITY.—Prof. Benedict recently read a paper on the application of electricity for the removal of tumors before the Medical Society of Vienna, which is reported in a recent number of the *Wien. Med. Presse*. He points out the great improvements that have been made of late years in the construction and mode of application of apparatus, and refers particularly to the powerful current that can be obtained from the lead-zinc battery of Fromhold. He has himself constructed a carbon-zinc battery of great usefulness, which can be set in action by a concentrated solution of bichromate of potash and sulphuric acid (1 to 15). He mentions as the principal forms of tumors in which electricity has been found efficacious: 1. Inflammatory swellings of the joints, in which, however, the current should not be applied directly to the inflamed part, but to the sympathetic spinal cord or nerves supplying it; 2. Fluid tumors resulting from inflammation, as hydrocele; 3. Angiomata and aneurisms,

in which several needles connected with the positive pole should be introduced; 4. Lymphatic tumors, in which negative needles should be passed, so as to break down the larger into smaller tumors; but the current should not be too strong, lest suppuration and ulceration occur; 5. Indolent buboes; 6. Neoplasmata; 7. Carcinoma.

A NEW METHOD OF DESTROYING FAULTY CILIA IN TRICHIASIS OR DISTRICHIASIS.—P. J. Hayes, Surgeon to the Mater Misericordiae Hospital, successfully resorts to the following operation in "cases of limited *trichiasis* or *districhiasis*:" A Desmarres entropion forceps is applied to the eyelid, and so compressed as to cause arrest of circulation through the included portion. Next, a fine hypodermic syringe charged with a few drops of the tincture of perchloride of iron is passed obliquely through the palpebral margin, pushed to a point just above the roots of the abnormal cilia, and the tincture slowly injected, as it were, against the follicles. This proceeding is repeated in such a way that the two oblique punctures include the group of cilia to be destroyed. After a few minutes loosen the forceps, pull out the lashes carefully, and bathe the eye in cold water. In two or three days, when inflammatory swelling of the lid comes on, use bread-and-water poultices until ulceration occurs, permitting the escape of a narrow slough of subcutaneous tissue with complete removal of the hair follicles. (Dublin Journal of Medical Science.)

THE EXPECTANT TREATMENT IN ABDOMINAL PREGNANCY—PERFORATION OF THE UTERUS WITH THE SOUND.—In a letter from Vienna by Dr. Englemann (St. Louis Medical and Surgical Journal) the history of a case of abdominal pregnancy, under the charge of Prof. C. Braun, is given. The patient died from peritonitis a few days after the uterine sound had been introduced, entering quite deeply, the point to be plainly felt apparently just beneath the abdominal walls, Professor B.

believing that the instrument had entered one of the oviducts. The post mortem showed that the uterus was completely perforated at one point, and almost at another, and that the uterine openings of the oviducts were only sufficient to admit a fine probe. Dr. Martin believes those cases usually described as soundings of the oviducts were really perforations of the uterus. In cases of abdominal pregnancy Dr. M. usually prefers the expectant method, because he considers the operation for the removal of the child and secundines exceedingly dangerous, much more so than the Cæsarian operation or ovariectomy; and that it is better to wait quietly, trusting that the fetus may perish and become encysted, or be eliminated by a process of suppuration.

In our next number we shall publish an interesting case of abdominal pregnancy reported by Dr. Page, of Iowa.

The fact that in the Vienna case given above the uterine sound, in the hands of one of the ablest obstetricians and gynecologists in the world, perforated the uterus, and this too when the operator believed, until an autopsy told the truth, that the instrument had passed into an oviduct, should impress every one with the utmost caution, not only as to the cases in which this instrument may be used, but also in the manner of using it.

PEPSIN IN THE DIARRHEA OF CHILDREN.—Dr. A. Davidson states (The Practitioner) that there is a form of diarrhea, arising from feebleness of the digestive powers, often observed in children from one to two years old, in which antacids, aromatics, astringents, etc., are valueless, while pepsin rarely fails to restore the child to health. The symptoms of this form of diarrhea are as follows: "The motions are frequent, and vary considerably in character in different cases, but always show the presence of undigested food. Usually the action of the bowels take place directly after the time of feeding, and this circumstance leads the mother or nurse

to describe the child's state as one in which the food passes right through it, and does no good. Of course it is impossible that the food really passes through the intestinal canal so rapidly as this description would imply. What really occurs is that the ingestion of food into the stomach excites the action of the bowels, and leads to the expulsion of the half-digested food previously lying in the large intestines." Small doses of pepsin should be given with the food, and immediate improvement, with ultimate cure, will result. Dr. Davidson states that the preparation of pepsin which he generally uses is the wine, the dose being one tea-spoonful three or four times a day.

HEMP-SAW FOR THE EXCISION OF POLYPOID GROWTHS.—Dr. Alfred H. McClintock narrates (Dublin Journal of Medical Science) a case of intra-vaginal uterine polypus, in which the pedicle, as thick as a man's thumb and tightly encircled by the os uteri, was removed by what is termed a *hemp-saw*. The operation was thus performed: the perineum was retracted by a duck-bill speculum, the tumor seized with a vulsellum and drawn down to the vulva. Then there was passed round the pedicle, by means of Gooch's canula, "a loop of twisted silk fishing-line," the canula slipped up on it and firmly held, the ligature pulled tight, and drawn alternately with one and the other hand to and fro, keeping a pretty tight strain on it all the time. In thirty-five seconds the division of the pedicle was accomplished. Dr. McClintock, in the course of his remarks upon this method of operating, says: "The ligature was applied and used through a Gooch's double canula, whereby the vagina was protected from any injury which the sawing of the cord might have inflicted. In operating on a tumor higher up, or on a large tumor, it would be desirable to have the end of the instrument somewhat curved, so as to assist in preventing the cord from being chafed or worn by the friction against the distal orifice of the canula. Inasmuch

as a closely-twisted silk or hemp cord is capable of sawing through the neck of the fetus, there can be no doubt of its being adequate to cut through the pedicle of any polypus we ever met with in the uterus or vagina. This in itself is of no small advantage, as I have often seen the iron wire and the wire rope of every degree of thickness, when used with the *écraseur*, break on fibrous tumors, thereby causing much trouble and delay in the operation."

Dr. McClintock further advises, to prevent the possibility of the hemp ligature giving way, to employ a long piece of cord, and from time to time in the operation draw down one end of this ligature so as to bring a fresh portion of it in contact with the surface we are operating on.

Quite recently we had a letter from a friend, whose operative skill and professional attainments are admirable, and he gave about the same experience with wire and wire-rope in these operations which Dr. McClintock mentions. Several times too we have found the same thing take place, the wire or the rope breaking, the operation just commenced or even half-completed. We feel quite ready to renounce the wire-rope *écraseur* and try the hemp-saw.

It is proper to state, for the benefit of those of our readers who have not already learned the fact, that while the application of the hemp-saw to the removal of uterine polypi belongs to Dr. McClintock, yet its original device belongs to Dr. Geo. H. Kidd, of Dublin, for some years the editor of the *Dublin Quarterly*, who used it for decapitation of the fetus. Dr. Beatty, an honored veteran in obstetrics whom no medical man would visit Dublin without seeing, uses the following language in regard to this invention of Dr. Kidd's: "Any one who had gone through the toil and difficulty of the old operation of evisceration in a case of transverse presentation, where the arm was down in the vagina, the child a large one, and no possibility of turning, would rejoice at the introduction of such an operation. The simple operation by means of a

cord being substituted for the fearful operation of evisceration was one which those who had gone through the latter must rejoice at, and which the gentlemen of the present day ought to be very happy at having placed within their reach. He had himself toiled for an hour or an hour and a half over the operation of evisceration, the most odious and disgusting in obstetric practice. The simplicity of Dr. Kidd's operation seemed to him almost miraculous contrasted with that he had alluded to, and it was one of the greatest boons conferred on midwifery in modern times."

SYPHILIS-CORPUSCLES OF LOSTORFER.—The Boston Medical and Surgical Journal of April 11th says: "We are informed that the committee of accomplished microscopists appointed from the Boston Society for Medical Observation to investigate the subject of syphilis-corpuses in the blood have reported, as the unanimous result of their individual and independent researches, that their conclusions are negative; that the bodies described by Lostorfer as peculiar to syphilitic blood were found in the blood of syphilitic patients and of healthy persons as well, and that the so-called corpuscles appear to have their origin in certain physical or chemical changes to which the blood globules are subjected in the course of prolonged microscopic examination."

Notes and Queries.

A CARMINATIVE AND AN EMMENAGOGUE WANTED. — A Nebraska correspondent writes us for the above, and we shall comply with his request, merely entering a *caveat* against relying on formulas for all cases. The following is a modification of Dewees's carminative, which is regarded as of considerable value by many practitioners who have used it:

R. Magnesiæ calcinat., . . . ʒj;
 Tinct. opii, gtt. xx;
 Tinct. asafetid., f. ʒj;
 Aqua menth. pip., f. ʒj.

M. S. Ten to twenty drops, according to age of infant.

A good emmenagogue pill* in anæmic amenorrhœa is composed of equal parts of dried sulphate of iron, white turpentine, and aloes. The pill may weigh two or three grains, and may be given twice or thrice daily, regulating the frequency of repetition and the weight of the pill by the condition of the bowels.

Another efficient emmenagogue pill † may be made of equal quantities of *rue*, *savine*, and *ergotine*, and half as much either of aloes or of gamboge. The pill may weigh from three to four grains, and two or three may be given three times a day. *Apiol*, the active principle of parsley, is not held in such high esteem in this country as it is in some parts of Europe; partly because it has been so little tried, but chiefly because that which is generally found in our drug-stores is either

* This pill we have previously mentioned in the American Practitioner.

† This is nearly the same as recommended by Courty.

entirely factitious or else grossly adulterated. Undoubtedly this medicine is one of the safest and most certain of that very uncertain class of medicines called emmenagogues.

Faradization—the positive electrode passed into the uterine cavity, the negative applied to the hypogastrium—gives oftentimes a very prompt success in inducing a sanguineous discharge from the uterus; but in order that such result should follow, this means should be used only at a time when the other phenomena of menstruation manifest themselves, the flow only wanting.

T. P.

A CASE OF ASCITES.—Dr. George Boerstler, of Lancaster, Ohio, communicates the following:

"Mrs. R., age fifty-two, mother of ten children, nine of whom are living, had always been in good health until the latter part of the winter of 1869. She occasionally suffered from indigestion, accompanied with palpitation, but domestic remedies always corrected the disorder. A fullness of her abdomen was noticed, which she attributed to the accumulation of gas in the stomach and bowels, but which was not removed by ordinary domestic remedies. She sought medical advice, and was found to have ascites. The abdomen began gradually to enlarge to such an extent as to impede respiration, and there was considerable pain, particularly in the right hypochondrium; appetite impaired and bowels constipated; passes the usual quantity of urine, which is slightly acid and contains numerous crystals of uric acid; no albumen; no yellow appearance of the skin or of sclerotic; no anasarca nor swelling of the extremities.

"On the 27th of April I drew off five and a half gallons of light, straw-colored fluid. Under the use of an occasional cathartic, with tonics and diuretics, she was soon able to leave her room, and expressed herself as feeling quite well. The fluid, however, began to accumulate, and another tapping was necessary, to be followed by still others. I give the

date of each operation, with the quantity of fluid removed: July 6th, $4\frac{1}{2}$ gallons; August 8th, 4 gallons; September 2d, 4 gallons; October 3d, $4\frac{1}{2}$ gallons; November 15th, $3\frac{1}{2}$ gallons; March 9th, 4 gallons 2 pints; March 30th, 3 gallons; April 20th, 4 gallons; May 3d, 3 gallons 1 pint; June 10th, 5 gallons; June 28th, $3\frac{1}{2}$ gallons; July 15th, 4 gallons 2 pints; July 29th, 3 gallons; August 29th, 4 gallons 1 pint; September 15th, $4\frac{1}{2}$ gallons; October 1st, 3 gallons 3 quarts; October 17th, $3\frac{1}{2}$ gallons; October 31st, 4 gallons; November 13th, 3 gallons 3 pints; November 26th, 3 gallons; December 8th, 3 gallons; December 21st, $3\frac{1}{2}$ gallons; January 2d, 1872, 4 gallons; January 14th, 4 gallons 1 pint; January 15th, 2 gallons. Number of times tapped, 29. Total amount of fluid removed, 111 gallons 1 pint.

"The remarkable features of this case seem to be the frequent number of tapplings and the large quantity of fluid removed in the short period of one year eight months and nineteen days. It was surprising that the patient's physical powers did not give way sooner under the constant and enormous drainage from her system. Many expire after the second or third tapping, and comparatively few live long after the fifth or sixth. Cases are recorded where the fluid has never again accumulated after the first operation. A similar case came under my observation. I drew off six gallons of fluid from a female who was pale, anæmic, and very much emaciated, but made a rapid recovery, without the dropsy again returning. On but two occasions was my patient confined to bed longer than twenty-four hours after being tapped. After the operation had been repeated the twenty-sixth time there was a constant eructation of sour, acrid fluid from the stomach, and every article of food taken was immediately vomited. This was produced by some indigestible food which she had taken a few hours before being tapped, and was relieved by bismuth and lime-water. After the twenty-ninth tapping the physical powers succumbed, and the patient

expired on the following night. There was never any œdema or anasarca. Microscopic and chemical examination of the urine revealed nothing indicative of renal disease. The cause of the dropsical effusion is rather obscure; but from the history of the case, and the constant pain which seemed to concentrate itself in one place—over the liver—there is evidence that the liver was the organ principally involved, and the disease in all probability was cirrhosis. A post-mortem examination could not be obtained, which would have thrown much light on the pathology of the case."

DYSMENORRHOEA CAUSED BY AN INTRA-UTERINE POLYPUS—CURED BY THE REMOVAL OF THE GROWTH.—Dr. Melvin Rhorer, of Louisville, communicates the following interesting case. Before presenting it, however, we wish to remark that the diagnosis of mechanical dysmenorrhœa is generally difficult, often too impossible, without direct exploration of the uterus by means of the finger, by the uterine sound, and by the dilatation of the cervical canal by sponge-tents. Unpleasant as it is to resort to such an examination, especially in the case of a virgin, yet it was eminently proper under the circumstances narrated by Dr. Rhorer, and the sequel proves both the correctness of the diagnosis and of the treatment.

"The latter part of December I was called to an unmarried lady, twenty years of age, suffering with dysmenorrhœa. Menstruation commenced at sixteen, and for three years has been both painful and protracted, sometimes lasting fourteen days. She had taken various remedies, but with no permanent benefit, from excellent physicians. Thinking, both from the character of her suffering as well as from the utter failure of all constitutional treatment to benefit her, that there might be some mechanical obstruction, I determined to dilate the cervical canal and explore the uterine cavity. Accordingly four sponge-tents were successively introduced, commencing, of course, with the smallest; and immediately after the withdrawal of the fourth I readily introduced my finger into the uterus, and, probably equally to the joy of myself and patient, discovered a polypus, about the size of a conical bullet, attached

to the posterior wall near the fundus by a pedicle half an inch long. The polypus was removed by a very delicate *écraseur*, only slight hemorrhage, no unpleasant after-effects. Her menstruation now is painless, and lasts but four days."

LETTER FROM MR. LAWSON TAIT.—We publish below a letter recently received from Mr. Tait. It is of some interest, both as to the probable period when Sir James Simpson first resorted to the formation of a vesico-vaginal fistula for the cure of cystitis, and also for the unequivocal indorsement of such treatment in certain cases of this disease. Indeed it seems astonishing that any physician of ordinary intelligence should blindly rush to its condemnation.

A similar operation was recommended in the case of the male, many years ago, by Mr. Guthrie, as the following extract from Copeland's Dictionary, American edition, Vol. III., page 1310, clearly shows:

"When everything has failed" (*i. e.*, in the treatment of cystitis) "it has been proposed by Mr. Guthrie *to open the neck of the bladder* by an incision, as in lithotomy, so as to allow a free outlet to the mucous secretion as fast as it is poured out, and thus afford the bladder comparative repose, on the same principle as the knife is recommended for anal fistula and fissure."

Probably it was this suggestion of Mr. Guthrie which led Dr. Willard Parker to resort to this operation in the case referred to by Dr. Emmet in his able and interesting paper published in this journal. These remarks made, we call the attention of our readers to Mr. Tait's letter.

BIRMINGHAM, February 28, 1872.

DEAR SIR—The first case of which I have cognizance of the operation having been done by Sir James Simpson occurred, I think, in 1860. I have unfortunately no record of it. I feel certain that he had done the operation before, for he on several occasions spoke of the operation, yet forgot the case I refer to till I reminded him of it. It is more than likely therefore that it was not his first. Dr. Keith, the celebrated ovariologist, has told me that the late

Mr. Syme had practiced the operation on a male successfully. There can be no doubt that it is a valuable and thoroughly established proceeding, based on sound surgical principle. The criticisms in the Clinic are ill-digested speculation of mere theorists.

Yours truly,

LAWSON TAIT.

RESOLUTIONS ON THE DEATH OF DR. WILLIAM PAWLING.—

At the meeting of the Boyle County Medical Society, held at Danville, Ky., April 9, 1872, the following preamble and resolutions were introduced, and adopted unanimously:

Whereas God, the Supreme Dispenser of life and death, hath called away from his sphere of action here a member of this Society, Dr. William Pawling, who from his long and useful professional life, his earnest coöperation in the founding of this Society, and his untiring labors for its advancement and perpetuity, his high-toned ethical bearing among his fellows, his extensive and successful practical knowledge and skill, and in his quiet and uncomplaining, indeed cheerful, Christian fortitude, as 'neath the weight of years he toiled on his professional rounds to the end, hath left us much in his example for imitation, therefore be it resolved:

1. That in the death of our confrere, who for more than a half century steadily marched in the ranks of our profession, battling with disease, and has now fallen at more than three-score and ten with armor still on, this Society has met with a profound loss.

2. That while we bow in submission to the Sovereign will we will ever cherish with lively interest the memory of our deceased brother, and sincerely sympathize with his family in their irreparable loss.

3. That these resolutions be spread upon the minutes of the Society, and published in the Kentucky Advocate and the medical journals of the state, and a copy sent to the family of the deceased.

JOHN D. JACKSON,
A. R. MCKEE,
R. W. DUNLAP, } *Committee.*

INDIANA MEDICAL SOCIETY.—We hope our Indiana friends will bear in mind the meeting of the Indiana State Medical Society on the third Tuesday of May, and make their arrange-

ments to attend it. This Society is growing in numbers, in power, and in influence; but still all these may be greatly increased, and it rests with the profession of the state to make this organization at once the exponent of, and the contributor to, their culture, honor, and usefulness. Medical gentlemen from other states are cordially invited to attend this meeting.

RHETORICAL LICENSE.—The majority of doctors writing for medical journals express their ideas clearly, directly, and plainly; but occasionally they get astray in their facts and in their rhetoric. Quite recently we have met with two sentences, the one illustrating the former error, the other the latter, in the pages of two of our contemporaries; and—the coincidence is remarkable—they both occur in well-meant tributes to eminent members of our profession who have recently departed this life; seeming to indicate that in this sort of post-mortem literature special license is granted the writers. Number one is as follows: "Though now silent in the pallid embrace of death, his name is enshrined in a pyramid of facts which will secure to it a sacredness and prolonged existence, while the memory of his life remains a model and exemplar of all that is best and most worthy of imitation by the profession which he adorned." A pyramid may be a shrine, but it is a burial shrine; and how a name thus buried can be got out we do n't understand. Still less do we understand how memory can be a model and exemplar; but least of all can we comprehend what is meant by the pallid embrace of death. We have read indeed in sacred writings of death on the pale horse, and in profane of pale death, *Pallida Mors*; but why a pallid embrace should be attributed to death any more than we should attribute a green, yellow, red, blue, or black embrace to any other personification, or to any person or thing, we can not tell.

Number two reads as follows: "While in the latter metropolis he had to contend with the greatest poverty, want,

and suffering, equaling for a time that described by the Hon. John DeQuincy as occurring to himself in his classic work, entitled 'The History of the Opium-eater.' " Certainly there was a Thomas DeQuincey who wrote *Confessions of an English Opium-eater*; but we do not believe in Hon. John DeQuincy any more than we do in Prester John, and we suspect his classic work has no more existence than the differential and integral calculus of the Hottentots.

T. P.